DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
ACQUISTION, LOGISTICS AND TECHNOLOGY
JOINT TACTICAL RADIO SYSTEM
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REPLY TO
ATTENTION OF

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SAAL-JR

MEMORANDUM FOR DISTRIBUTION

Reference (a): Software Communications Architecture Specification (SCA) MSRC-5000SCA Version 2.2, November 17, 2002

Enclosure (1): API Standardization Process

Subject: JTRS Policy 002; Application Program Interface (API) Policy

1.0 BACKGROUND

1.1 The JTRS program was initiated in order to overcome the serious problem of non-interoperability among radios within the Services, across the Services, and between U.S. Forces and Allied and Coalition partners. Early analysis determined that this objective could best be accomplished through the use of a family of software defined radio systems and a common, single source for each waveform (as defined in the JTRS Operational Requirements Document). It is essential that these waveform implementations be developed such that they can be easily ported to any JTRS hardware configuration. This portability is to be achieved (in part) through the use of a standard Software Communication Architecture (SCA), Reference (a).

1.2 The development of a common set of Application Program Interfaces (APIs) for use across all waveform and JTRS Set implementations is a key aspect to achieving Department of Defense goals for interoperability, waveform portability, software reuse, and technology insertion. To achieve this objective the JTRS JPO is to establish a minimum set of APIs to apply across all JTRS developments and acquisitions. The SCA and its supplements provide guidance and requirements for developing APIs for the JTRS program. An API, in the context of the Software Communications Architecture (SCA), functions as an interface, and processes and interprets communications between hardware and software applications such as waveforms.

2.0 DEFINITIONS

2.1 Application Program Interface (API) An API is a standard interface to a coherent functional capability. An API defines an agreement between two components on the services provided and their required behavior. The API possesses attributes or parameters and provides the coordination, but it is not the implementation of the agreement. This allows waveforms to be developed independent of hardware and to be ported more easily to diverse radio sets.

2.2 JTR Set Software Infrastructure In the context of a Joint Tactical Radio Set the software infrastructure consists of the Operating System, the Core Framework, Radio Devices, and Radio Services required to provide the services needed by waveforms.

2.3 External API An external API is located between a waveform Application and the JTR Set software infrastructure. These interfaces have a major impact on the ease with which waveforms can be ported to a hardware set.

2.4 Internal API An internal API is located within objects or components of the waveform application or the software infrastructure. These interfaces impact the reusability of the software and may impact technology insertion.

2.5 Common API Library The API Library is the repository of all approved Internal and External APIs that can be used as an interface across multiple software implementations. The collection of these APIs represents the minimum common set of APIs that will be used for all JTRS designs.

3.0 PURPOSE The purpose of this API Policy Memorandum is:

3.1 To establish JTRS Program policy for API development
3.2 To establish JTRS Program policy for API control, approval, and standardization
3.3 To provide guidance to JTRS acquisition efforts as to appropriate contractor direction.

4.0 APPLICABILITY

4.1 This policy memorandum applies to all Service JTRS Acquisitions, Cluster Programs, JTRS JPO waveform development efforts, associated hardware/software developments, and all SCA compliant developments.

4.2 The detailed guidance in this memorandum applies to all on-going acquisition programs regardless of their stage of development.

5.0 POLICY

5.1 API Development All APIs shall be developed in accordance with the SCA and its supplements. The API Supplement to the SCA specifies the precedence of use of existing APIs and the process to be used if new APIs need to be developed.

5.2 API Control, Approval, and Standardization

5.2.1 The JTRS JPO will approve all APIs and place all APIs under configuration control. It will also maintain a library of common and approved APIs. Currently a small number of APIs are under configuration control. The SCA API Supplement specifies documentation requirements for APIs and requires developers to use these APIs from the JTRS JPO Library of approved APIs unless they justify and receive approval to evolve a current API or submit a new API. A description of the API behaviors must also be included in the submittals.

5.2.2 Developers are required to submit APIs for approval and Configuration Management by the JTRS JPO in accordance with the API Process, paragraph 5.3. These APIs include:

5.2.2.1 External Waveform APIs affecting waveform portability
5.2.2.2 APIs internal to waveforms affecting software reuse
5.2.2.3 APIs internal to waveforms affecting technology insertion
5.2.2.4 APIs internal to the JTR Set Software infrastructure affecting software reuse
5.2.2.5 APIs internal to the JTR Set Software infrastructure affecting technology insertion

5.3 API Process In order to coordinate the development of a common minimum set of standardized APIs and to accommodate backward compatible API extensions as new technology and waveforms evolve, a strict process shall be followed. This process is described in Enclosure (1).

6.0 ACQUISITION GUIDANCE AND ACTION

All JTRS acquisition documents shall include the appropriate guidance to the development contractors and potential offerors with regards to this JTRS API policy. Cluster Program Managers are requested to promulgate this policy to their support staff and development contractors and follow the process provided in Enclosure (1).

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